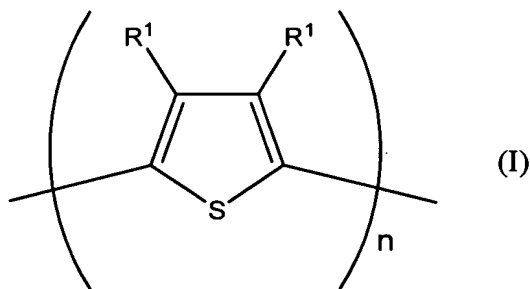


CLAIMS

What is claimed is:

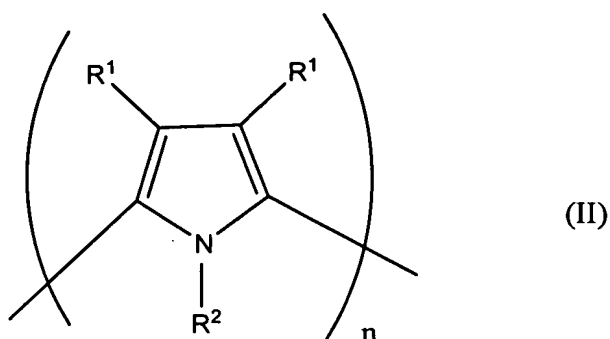
1. A composition comprising a non-aqueous dispersion comprising at least one doped conductive polymer and at least one colloid-forming polymeric acid, wherein the conductive polymer is selected from a polythiophene, a polypyrrole, a polyaniline, and combinations thereof.
2. A composition according to Claim 1, wherein the conductive polymer is doped with an organic acid anion.
3. A composition according to Claim 2, wherein the organic acid anion is derived from an organic acid selected from a non-polymeric organic acid, a water-soluble polymeric organic acid, and combinations thereof.
4. A composition according to Claim 1, wherein the pH of the dispersion is between 1 and 8.
5. A composition according to Claim 1, wherein the polythiophene comprises Formula I:



wherein:

- R^1 is independently selected so as to be the same or different at each occurrence and is selected from hydrogen, alkyl, alkenyl, alkoxy, alkanoyl, alkythio, aryloxy, alkylthioalkyl, alkylaryl, arylalkyl, amino, alkylamino, dialkylamino, aryl, alkylsulfinyl, alkoxyalkyl, alkylsulfonyl, arylthio, arylsulfinyl, alkoxycarbonyl, arylsulfonyl, acrylic acid, phosphoric acid, phosphonic acid, halogen, nitro, cyano, hydroxyl, epoxy, silane, siloxane, alcohol, benzyl, carboxylate, ether, ether carboxylate, ether sulfonate, and urethane; or both R^1 groups together may form an alkylene or alkenylene chain completing a 3, 4, 5, 6, or 7-membered aromatic or alicyclic ring, which ring may optionally include one or more divalent nitrogen, sulfur or oxygen atoms, and n is at least about 4.

6. A composition according to Claim 1, wherein the polypyrrole comprises Formula II:



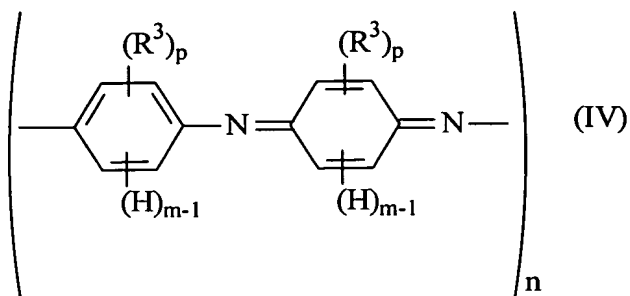
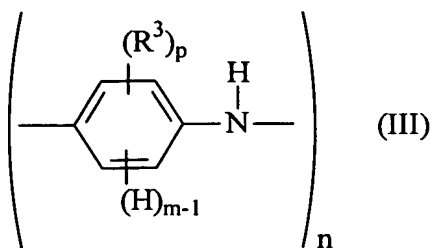
wherein:

5 n is at least about 4;

R^1 is independently selected so as to be the same or different at each occurrence and is selected from hydrogen, alkyl, alkenyl, alkoxy, alkanoyl, alkythio, aryloxy, alkylthioalkyl, alkylaryl, arylalkyl, amino, alkylamino, dialkylamino, aryl, alkylsulfinyl, alkoxyalkyl, alkylsulfonyl, arylthio, arylsulfinyl, alkoxycarbonyl, arylsulfonyl, acrylic acid, phosphoric acid, phosphonic acid, halogen, nitro, cyano, hydroxyl, epoxy, silane, siloxane, alcohol, benzyl, carboxylate, ether, ether carboxylate, ether sulfonate, and urethane; or both R^1 groups together may form an alkylene or alkenylene chain completing a 3, 4, 5, 6, or 7-membered aromatic or alicyclic ring, which ring may optionally include one or more divalent nitrogen, sulfur or oxygen atoms; and

R^2 is independently selected so as to be the same or different at each occurrence and is selected from hydrogen, alkyl, alkenyl, aryl, alkanoyl, alkylthioalkyl, alkylaryl, arylalkyl, amino, epoxy, silane, siloxane, alcohol, benzyl, carboxylate, ether, ether carboxylate, ether sulfonate, and urethane.

7. A composition according to Claim 1, wherein the polyaniline comprises Formula III or Formula IV:



5

wherein:

n is at least about 4;

p is an integer from 0 to 4;

10 m is an integer from 1 to 5, with the proviso that $p + m = 5$; and R^3 is independently selected so as to be the same or different at

each occurrence and is selected from alkyl, alkenyl, alkoxy, cycloalkyl, cycloalkenyl, alkanoyl, alkythio, aryloxy,

alkylthioalkyl, alkylaryl, arylalkyl, amino, alkylamino,

15 dialkylamino, aryl, alkylsulfinyl, alkoxyalkyl, alkylsulfonyl,

arylthio, arylsulfinyl, alkoxycarbonyl, arylsulfonyl, carboxylic

acid, halogen, cyano, or alkyl substituted with one or more of sulfonic acid, carboxylic acid, halo, nitro, cyano or epoxy

moieties; or any two R^3 groups together may form an alkylene

20 or alkenylene chain completing a 3, 4, 5, 6, or 7-membered

aromatic or alicyclic ring, which ring may optionally include one or more divalent nitrogen, sulfur or oxygen atoms.

8. A composition according to Claim 1, wherein the non-aqueous dispersion comprises an organic liquid selected from ethers, cyclic ethers, alcohols, polyols, alcohol ethers, ketones, nitriles, sulfides, sulfoxides, amides, amines, carboxylic acids, and mixtures thereof.

25

9. A composition according to Claim 1, wherein said colloid-forming polymeric acid is selected from polymeric sulfonic acids, polymeric phosphoric acids, polymeric phosphonic acids, polymeric carboxylic acids, polymeric acrylic acids, and mixtures thereof.

5 10. A composition according to Claim 9, wherein said colloid-forming polymer acid comprises a fluorinated polymeric sulfonic acid.

11. A composition according to Claim 10, wherein said polymeric sulfonic acid is perfluorinated.

10 12. A composition according to Claim 11, wherein said non-aqueous dispersion comprises an organic liquid selected from dimethylacetamide, N-methylpyrrolidone, dimethylformamide, ethylene glycol, aliphatic alcohols, and mixtures thereof.

15 13. A composition according to Claim 1, further comprising an additional material selected at least one from polymers, dyes, carbon nanotubes, metal nanowires, metal nanoparticles, carbon nanoparticles, carbon fibers, carbon particles, graphite fibers, graphite particles, coating aids, organic and inorganic conductive inks and pastes, charge transport materials, semiconductive or insulating inorganic oxide nano-particles, piezoelectric, pyroelectric, or ferroelectric oxide nano-particles or
20 polymers, photoconductive oxide nanoparticles or polymers, dispersing agents, crosslinking agents, and combinations thereof.

14. An electrically conductive or semiconductive layer deposited from a composition according to Claim 1.

25 15. A buffer layer deposited from a composition according to Claim 1.

16. An electronic device or other application comprising at least one layer comprising at least one composition according to Claim 1.

30 17. A device according to Claim 16, wherein the device or application is selected from devices that convert electrical energy into radiation, devices that detect signals through electronics processes, that convert radiation into electrical energy, devices having at least one electronic component, memory storage devices, energy storage devices, antistatic films, biosensor devices, electrochromic devices, and electromagnetic shielding applications.

35 18. A method for making a non-aqueous dispersion of a conductive polymer comprising a step selected from one of the following:
(a) dispersing doped conductive polymer solids in a non-aqueous dispersion of colloid-forming polymeric acid;

(b) dispersing colloid-forming polymeric acid solids in a non-aqueous dispersion of doped conductive polymer; and

(c) combining a non-aqueous dispersion of doped conductive polymer with a non-aqueous dispersion of colloid-forming polymeric acid.

5 19. A method according to Claim 18, wherein a colloid forming polymeric acid is added to a non-aqueous dispersion of doped conductive polymer

 20. A method according to Claim 18, wherein a doped conductive polymer solid is added to a non-aqueous dispersion of a colloid
10 forming polymeric acid.

 21. A method according to Claim 18, 19, or 20, wherein the doped conductive polymer and colloid-forming polymeric acid are further blended using a technique selected from sonication and microfluidization.